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Rectus sheath hematoma after laparoscopic cholecystectomy: two cases

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ABSTRACT

Background: Rectus sheath hematoma (RSH) results from the accumulation of blood in the rectus sheath. It is often self-limiting but might be fatal sometimes. The aim of this study was to present two patients with RSH post-laparoscopic cholecystectomy (LC) who were managed expectantly with a long length of stay and blood transfusion.

Case Presentation: Two females (47 and 52 years old) had undergone LC and developed RSH on postoperative days 1 and 3, respectively. Both were anemic and slightly tachycardic, with no other abnormalities. RSH was diagnosed in both cases with sizes 5.52 × 3.62 cm and 2.7 × 1.4 cm, respectively, shown on ultrasonography and CT scan of abdomen. The patients were treated conservatively, with blood transfusion. The patients were then discharged.

Conclusion: RSH might develop post-LC; hence, surgeons should assess the patient's complaints, labs, and physical examination to find RSH.

Keywords: Rectus sheath hematoma, surgery, laparoscopy cholecystectomy, case report.

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Background

Rectus sheath hematoma (RSH) is a rare clinical condition, which results from the accumulation of blood in the rectus sheath, after epigastric arteries are damaged or by muscular tear directly. RSH is often self-limiting but might be fatal sometimes [1]. RSH can occur at the time of trocar placement. Most stable RSHs are managed expectantly or treated with ultrasonography or computed tomography-guided drainage [2]. The aim of this study was to present two patients with RSH post-laparoscopic cholecystectomy (LC) who were managed expectantly with a long length of stay and blood transfusion.

Case Presentation

A 47-year-old female on antihypertensive therapy, with a Body Mass Index (BMI) = 30, acute attack of chronic cholecystitis, and multiple small stones in a thick-walled gall bladder that was shown with a hepatobiliary ultrasonography, had an LC. There were complaints of sharp, intense pain in the right upper quadrant and bruising on the skin was present on epigastric trocar entry site. The patient was anemic and slightly tachycardic on postoperative day 1. Physical examination revealed ecchymosis, a palpable, firm, tender, non-mobile 5×4 cm mass on the right abdominal upper quadrant. Lab examination showed a 3 gr/dl drop in the hemoglobin concentration, and no other abnormalities were found. An RSH of 5.52×3.62

cm in size was seen in the ultrasonography, and then in the CT scan of the abdomen (Figure 1). The patient was treated conservatively, with IV liquid infusion, antibiotics, packed red cell suspension transfusion, analgesics, bed rest, hematoma compression, ice packs, and cessation of low molecular weight heparin (LMWH). The patient had hemorrhagic drainage ceased on postoperative day 20 from the wound and was discharged with no complaints. Another case of a 52-year-female, with BMI = 29, had gall bladder stone operated by LC. An RSH occurred on postoperative day 3. The patient had no associated disease, but had complaint of pain and was anemic. Lab examination was normal except a slightly lower value of hemoglobin. The coagulation parameter was also normal. An ultrasonography and CT scan of the abdomen revealed an RSH of 2.7×1.4 cm in diameter. Antibiotics, analgesic, IV liquid replacement, bed rest, and two packed red cells were given. LMWH was discontinued, and the patient was discharged on postoperative day 15 (Figure 2).

Discussion

Some of the past studies have found that RSH is common in women more than men, with 3-3:1 ratio. It is already known that women contain less muscle mass which cannot provide protection against muscle and vessel injury. One of the RSH predisposing factors has been reported to be pregnancy. The RSH incidence increases with age,



Figure 1. Rectus sheath hematoma of the first patient



Figure 2. Rectus sheath hematoma of the second patient

excessive anticoagulation use, comorbidities like atherosclerosis, and decreased muscle mass, which explains the aforementioned ratio. The most affected age group of patients as per publications is the 49-69 years [1]. Both of the present patients were female and their ages were in the above-stated range; both had a single dose of preoperative venous thromboembolism prophylaxis. Over the years, many risk factors have been published for developing RSH. Spreading awareness of such risk factors might help in more accurate and faster RSH diagnosis. These factors are trauma, iatrogenic/surgery, anticoagulation, coughing/ intense contractions of the rectus muscles, other medical conditions, and pregnancy. RSH might develop after laparoscopic or open abdominal surgery, which is mostly due to the lack of hemostasis, or after intra-abdominal injection paracentesis and peritoneal catheter insertion [1]. We also believe that the causes of the RSH in the present cases might be insufficient hemostasis and anticoagulation.

Abdominal wall hematoma complication is common post-LC, which occurred in 6.25% patients, according to

Bhattacharya et al.'s series [3]. It usually occurs between the second and sixth postoperative day, and causes delay in hospital discharge or readmission after discharge [3]. RSH occurred in only (2/500) 0.4% of the patients who underwent LCs in the last 5 years, in the author's hospital. This rate was lower than that in other reported case series. Bruising is an important complication. Except the visible ecchymoses, RSH should be suspected in all patients who suffer from postoperative pain which is unusually high, and in asymptomatic patients who presents an unexplained and sudden drop in hematocrit post-surgery. Abdominal wall ecchymosis was found in 17% of the cases and revealed extraperitoneal hematoma extension or intraperitoneal rupture [3]. This finding was in line with the present cases. Abnormal liver function test and mild icterus might occur due to gradual breakdown of clots [3]. The primary investigation is the imaging through ultrasonography of the abdomen, but it is limited to detecting intra-abdominal wall blood, only if that is what is looked for particularly [3]. Both ultrasonography and CAT scan have reduced surgeries that were unnecessary for RSH; however, now the CAT scan is the diagnostic imaging of choice. In two recent series of RSH, CAT scan established 100% diagnosis in the cases; it can also exclude other diseases of the abdomen, if the initial diagnosis is unclear [4]. RSH can categorize its findings into one of the three groups, by its cross-sectional CT scan appearance: type I, intramuscular unilateral hematoma does not dissect along the fascial planes; minor hematoma, results in diffused muscle enlargement with minimal hemodynamic compromise and does not require hospitalization. Type II: unilateral or bilateral intramuscular hematoma with fluid-fluid level requires hospitalization. Type III: hematoma with presence of blood between transversalis fascia and muscle. It might be associated with hematocrit drop and moderate clinical condition deterioration with moderate hematoma, which requires hospitalization [5,6]. A fluid-fluid level implies the presence of blood which is not clotted, which indicates either active hemorrhage or coagulopathy, requiring hospitalization and requirement of blood transfusion [7]. The diagnosis of the present case patients was made with an abdominal ultrasonography and then abdominal CT scan. CT scan of their abdomens showed RSHs, which was classified as type II. The author had the two patients with an intramural hematoma and there was no sign of bleeding within the abdomen, which suggests a damaged vessel of the abdominal wall, while setting an access port. Hematoma formation due to abdominal wall vessel damage might be reduced by siting of the 5 mm access ports carefully in the right upper quadrant. Reports have suggested prevention of medium-sized vessel damage by transilluminating the abdominal wall before inserting trocars and by observing the entry points through laparoscope, which allows early detection of blood [3]. RSHs in the present patients occurred in the 10-mm subxiphoid trocar site; the trocar entry sites of both patients were routinely sutured. A report from England mentioned that two patients had abdominal wall hematoma and bruising in conjunction with blood collection in the subphrenic space of the right side. A possible explanation can be a reactionary hemorrhage from the gall bladder bed. The second patient of the present study also had a small reactionary hemorrhage in her gall bladder bed (the image of it is not shown here) [3]. Both patients of one study were given subcutaneous LMWH as antithrombotic prophylaxis [3]. Both patients of the present study were also given LMWH. It might have resulted in RSHs in the patients, but the hemostatic parameter of the patients was in normal value. One US study reported 1983 cases, in which five patients had perioperative gall bladder bed bleeding; they were observed and treated with transfusion. There was one episode of epigastric artery bleeding after insertion of trocar, which was then sutured [3]. The present cases were already routinely sutured at the trocar

insertions in all LCs. A significant decrease in hematocrit is usually treated by blood transfusion and oral iron supplement, if required [3]. RSH is usually self-limiting; hence, conservative treatment is the most common management. It consists of analgesics, bed rest, application of ice packs, cessation of anticoagulants, compression, correction of coagulopathy, volume replacement, and antibiotics, if there is an infection. This treatment strategy was followed in the present cases as well. RSH has been reported to be formed during LC because of trocar insertion [3,8]. However, this might be under-reported. RSH has a mortality rate of 1.6%. Early diagnosis is the key to treat even large hematomas conservatively, but if conservative treatment is insufficient, endovascular embolization, bleeding vessel ligation, and surgery should be considered [4]. For those receiving anticoagulation therapy, the mortality rate has been reported to be as high as 25%. The decision to opt for surgery in RSH management is difficult, as surgery has been reported to be carried out for incorrect diagnoses in many patients and because doctors confuse RSH with other intra-abdominal problems [9]. Infection and other complications, such as hypovolemic shock or death, can be prevented by early diagnosis and quick treatment. This is also important for patients with comorbidities. However, the mortality rate is high for elderly patients who have undergone surgery [10].

Conclusion

RSH might develop post-LC; hence, surgeons should assess the patient's complaints, labs, and physical examination to find RSH. Awareness of RSH is important in the differential diagnosis of acute abdominal pain, especially if occurred in the postoperative period.

What is new?

According to the existing literature: (1) RSH is rare. (2) The occurrence after LC could be seen, but almost always it was not reported as we have seen in clinical setting. (3) We need to be aware of this situation as presented in our cases, otherwise it could be risky.

List of abbreviations

- LC Laparoscopic cholecystectomy
- RSH Rectus sheath hematoma

Consent for publication

Written consent was obtained from all the patients.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

Author details

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Summary of the case

1	Patient (gender, age)	Two 47 and 52 years old females	
2	Final diagnosis	Rectus sheath hematomas	
3	Symptoms	Anemia tachycardia, sharp intense pain bruising on the skin	
4	Medications	Two patients were treated conservatively with IV liquid,ab,packed red cell suspension transfusion,analgesics,bed rest,hematoma compression,ice packs,cessation of low molecular weight heparin	
5	Clinical procedure	The patients were treated conservatively	
6	Specialty	General surgery	